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मानक

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Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

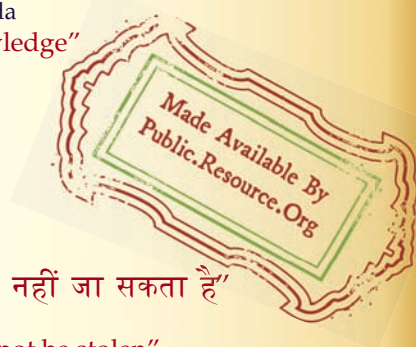
IS 3723-2 (1983): Capacitors for Radio Interference Suppression, Part 2: Type Fcrs 1 [LITD 5: Semiconductor and Other Electronic Components and Devices]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard



SPECIFICATION FOR
CAPACITORS FOR RADIO INTERFERENCE SUPPRESSION
PART 2 TYPE FCRS 1

0. General — This standard shall be read in conjunction with IS : 3723 (Part 1)-1978 'Capacitors for radio interference suppression : Part 1 General requirements and methods of test (first revision)'.

1. Outline Drawing and Dimensions — The outline drawing and dimensions shall be in accordance with Fig. 1 and Table 1.

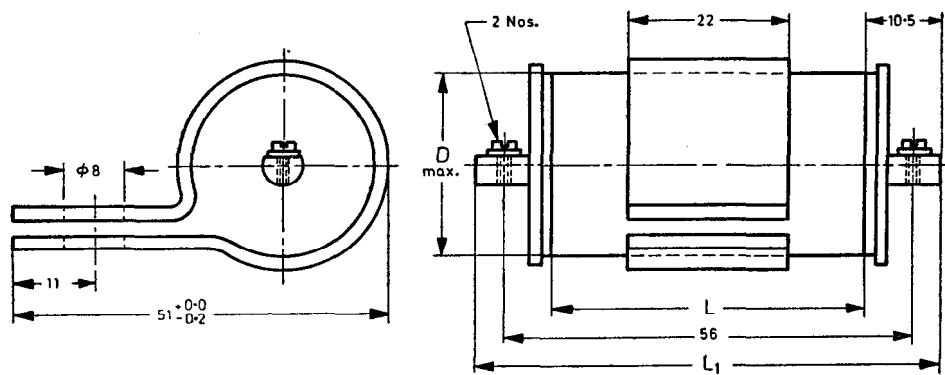


FIG. 1 OUTLINE DRAWING AND DIMENSIONS

TABLE 1 DIMENSIONS		
SI No.	Capacitance Value	Dimensions mm
(1)	(2)	(3)
i)	0.5 µF	$D \times L \times L_1$ 19 × 44 × 64
ii)	1.0 & 1.5 µF	25.4 × 44 × 64

IS : 3723 (Part 2))-1983

2. Characteristics

a) Selection tolerance	± 5 percent ± 10 percent ± 20 percent
b) Rated voltage	250 V dc
c) Rated current (of the central conductor)	30 A
d) Vibration	10 to 2 000 Hz; 150 m/s ²
e) Bump	4 000
f) Shock (impact)	1 km/s ²
g) Acceleration steady state	1 km/s ²
h) Tangent of loss angle	$\angle 0.01$
j) Insulation resistance	As given below :

Category	For $C_R \leq 0.33$ mF Resistance Value ($M\Omega$), <i>Min</i>	For $C_R > 0.33$ mF <i>RC</i> Value seconds, <i>Min</i>
55/85/56	12 000	4 000
40/85/21	6 000	2 000

k) Insertion loss (0.15 MHz to 300 MHz) (radio-frequency characteristics)	60 dB, <i>Min</i>
m) DC resistance	$< 0.005 \Omega$
n) Classified categories	55/85/56 and 40/85/21

3. Constructional Details

3.1 A capacitor whose one terminal is connected to the centre conductor which carries the current and the other terminal connected to the metallic case — which is normally earthed. The dielectric used shall be polyethylene terephthalate (polyester)/kraft paper and the aluminium foil is used as the electrode. Extended foil construction is employed.

4. Marking — See 7 of IS : 3723 (Part 1)-1978.

5. Classification of Tests — See 8.1 of IS : 3723 (Part 1)-1978.

5.1 General Conditions of Tests and Methods of Test — See 8.2 of IS : 3723 (Part 1)-1978.

5.2 Schedule of Type Tests — The test schedule and the specific requirements shall be in accordance with Table 2

TABLE 2 TEST SCHEDULE AND REQUIREMENTS

(Clause 5.2)

Sl No.	Test	Clause Ref in IS : 3723 (Part 1)-1978	Conditions of Test	Requirement
(1)	(2)	(3)	(4)	(5)
i) <i>Group 0</i>				
	All Samples			
a)	Visual examination	8.4.1	—	The workmanship and finish shall be satisfactory. The marking shall be legible.
b)	Dimensions	8.4.2	—	The dimensions shall be as specified in Table 1.
c)	Capacitance	8.3.2	—	The capacitance value shall correspond to the rated capacitance taking into account the tolerance.
d)	Tangent of loss angle	8.3.3	—	Shall be not greater than 0.01.
e)	Voltage proof test	8.3.1	At twice the rated voltage	There shall be no breakdown or flashover.
f)	Insulation resistance	8.3.4	To be measured with a direct voltage equal to 100 ± 15 V	Shall be as specified in 2 (j).
g)	Insertion loss	8.6.4	—	The minimum insertion loss shall be 60 dB over a frequency range of 0.15 MHz to 300 MHz.
ii) <i>First Group</i>				
a)	Robustness of terminations	8.4.3	As per IS : 9000 (Part 19/Sec 1 to 4)-1978*	There shall be no damage. The change in capacitance value shall be less than ± 2 percent.
b)	Vibration	8.4.5	As per IS : 9000 (Part 8)-1981*	There shall be no damage. The change in capacitance value shall be less than ± 2 percent.
c)	Bump	8.4.7	4 000 Bumps as per IS : 9000 (Part 7/Sec 2)-1979*	There shall be no fracture of seal, terminal supports or other deterioration.
d)	Torsion test on screw terminals	—	As per IS : 9000 (Part 19/Sec 4)-1978*	There shall be no mechanical damage.
e)	Sealing	8.6.1	As per IS : 9000 (Part 15/Sec 3)-1982*	There shall be no evidence of leakage.
f)	Climatic sequence	8.5.1	7.5.1 of IS : 7305 (Part 1)-1973†	
	1) Dry heat	—	At maximum category temperature	Insulation resistance shall be not less than 25 percent of the value specified in 2.
	2) Damp heat (accelerated) first cycle	—	One cycle of 24 hours	
	3) Cold Test	—	At minimum category temperature for 2 hours	

*Basic environmental testing procedures for electronic and electrical items :

Part 19 Test for robustness of terminations and integral mounting devices

Sec 1 Tensile test

Sec 2 Thrust test

Sec 3 Bending test

Sec 4 Torsion test

Part 8 Vibration

Part 7 Impact test

Sec 2 Bump

Part 15 Sealing test

Sec 3 Container sealing, gas leakage.

†Fixed capacitors used in electronic equipment : Part 1 General requirements and tests.

(Continued)

TABLE 2 TEST SCHEDULE AND REQUIREMENTS — *Contd*

SI No.	Test	Clause Ref in IS : 3723 (Part 1)-1978	Conditions of Test	Requirement
(1)	(2)	(3)	(4)	(5)
	4) Damp heat (accelerated) remaining cycles <i>Final Measurements</i>	—	5 cycles for 56 days cate- gory 1 cycle for 21 days category	—
	1) Visual examination	8.4.1	—	There shall be no damage.
	2) Voltage proof	8.3.1	—	There shall be no breakdown or flashover.
	3) Insulation resistance	8.3.4	— Category	Shall be as specified below: For $C_R \leq 0.33$ mF For $C_R > 0.33$ mF Resistance value RC value (M Ω) seconds 6 000 2 000 1 500 500
	4) Capacitance value	8.3.2	— 55/85/56 40/85/21	The change in capacitance shall not exceed ± 5 percent.
	5) Tangent of loss angle	8.3.3	—	Shall be not greater than 0.015.
iii)	<i>Second Group</i>			
	a) Damp Heat (long term)	8.5.2	—	There shall be no damage.
	1) Visual examination	8.4.1	—	There shall be no breakdown or flashover.
	2) Voltage proof test	8.3.1	—	Shall be as specified in final measurements under SI No. (ii) (f).
	3) Insulation resistance	8.3.4	—	The change in capacitance shall not exceed ± 5 percent Shall be not greater than 0.015.
	4) Capacitance value	8.3.2	—	
	5) Tangent of loss angle	8.3.3	—	
iv)	<i>Third Group</i>			
	a) Endurance	8.6.2	1 000 hours	There shall be no damage.
	1) Visual examination	8.4.1	—	There shall be no breakdown or flashover.
	2) Voltage proof test	8.3.1	—	Shall be as specified in final measurements under SI No. (ii) (f).
	3) Insulation resistance	8.3.4	—	The change in capacitance shall not be greater than ± 5 percent. Shall be not greater than 0.015.
	4) Capacitance value	8.3.2	—	
	5) Tangent of loss angle	8.3.3	—	
v)	<i>Fourth Group</i>			
	a) Charge/Discharge	8.6.3	10 000 cycles	There shall be no damage.
	<i>Final Measurements</i>			There shall be no breakdown or flashover.
	i) Capacitance	8.3.2	—	Shall be as specified in final measurements under SI No. (ii) (f).
	ii) Insulation resistance	8.3.4	—	The change in capacitance shall be not greater than ± 5 percent. Shall be as specified in final measurements under SI No. (ii) (f).
vi)	<i>Fifth Group</i>			
	a) Mould growth	8.5.4	As per IS : 9000 (Part 10)-1979*	There shall not be any mould growth visible.
vii)	<i>Sixth Group</i>			
	(a) Salt mist test	8.5.5	—	There shall not be any visible damage and marking shall be legible.

*Basic environmental testing procedures for electronic and electrical items : Part 10 Mould growth test.